

Teacher Classroom Research: Reflections on a Nation-Wide Experience In Iran

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Introduction

Teacher classroom research is an approach to educational innovation, which radically departs from the conventional approach. In the conventional approach, it could be argued, change and innovation is originated in academic settings and laboratories while teacher classroom research is a paradigm which places the major responsibility on the shoulders of classroom teachers by inspiring them to come up with solutions to the perceived problems of their classroom settings. This rather sharp difference between the two perspectives on educational change and innovation breed another major difference. That is the new paradigm, in its ideal state, leads to the embodiment of a sustained flow of ideas geared to the improvement of educational performance. Whereas in the context of the traditional perspective, change and improvement hardly turns into an internal force affecting the interactions that take place at each and every classroom. Rather, change is understood by site level practitioners as a project initiated from outside sources, presumably more qualified than

classroom teachers.

While policy makers should not regard these two perspectives as mutually exclusive, they are well advised to stress and highlight the new paradigm with its emphasis on teachers' central role in the process of continuous renovation of practice as a complementary mode.

To corroborate this suggestion one could resort to history. Macro scale improvement initiatives and proposals have, in many instances turned into a "no-action" scheme at the classroom level. Hence, the disappointing conclusion captured in the familiar phrase of "the more things change, the more they remain the same" effectively summarizes the outcome of many such change efforts (Stigler & Hiebert, 1999). The search for light, therefore, in dealing with the complex issue of change in educational systems must be guided by more grass root level initiatives and more professional wisdom supported by actions carried out in a real classroom setting.

The logic explained above seems to be at the heart of the "teacher researcher" initiative

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implemented in the pre-collegiate education system of Iran. Philosophical (epistemological) arguments, no doubt, have served as a powerful source of justification for the new perspective, which is the reason, why a brief account of such debates is included in the first section of the paper. However, theoretical discussions play a less significant role in persuading policy makers to adopt such initiatives, compared to the more practical/pragmatic concern of keeping innovation from becoming a non-event by freezing at the central level.

The author introduces yet a third logic in support of the “teacher researcher” program in Iran, which appears in the beginning of the second section analysing the Iranian experience. This alternative rationale, as will be seen later, emerges from a re-conceptualisation of the field of educational research.

Dominant Epistemology of Practice

The epistemology of practice dominant in professions is referred as “technical-rationality”. Schon(1983,1987) argues that such a rationality is based on a naïve conception of “application” and, therefore, ignores the need for reflection-in-action. He further contends that diminishing faith and confidence of the public in the quality of services provided by professionals can be partly attributed to the debilitating limits of technical rationality .

Professional knowledge within this epistemology, which provides the systematic knowledge base of a profession, is supposed to be specialized, firmly grounded, scientific and standardized (Schon, 1983, p 23).

Wilbert Moore, argues in defense of such properties and maintains that “if every professional problem were in all respects unique, solutions would be at best accidental and therefore have nothing to do with expert knowledge”. “I believe,” he continues, “that there are sufficient uniformities in problems and in devices for solving them, to qualify the solvers as professionals”. Professionals, according to this type of rationality, apply very general principles, standardied knowledge, to concrete problems (Moore, 1970).

In the education profession, and especially as it relates to the teaching-learning process, technical rationality has its proponents. Berliner (1984), for example, argues that, although research has not answered all questions about the relationship of teacher behavior to student learning, there are now “well documented ways for teachers to make sensible choices about how they should go about teaching”. Their relationship is strong enough to be considered an imperative for classroom action. Rosenshine and Stevens (1986) have expressed similar views and have taken their argument a step further by synthesizing research findings. Based on their synthesis, fundamental teaching actions have emerged which are exemplified in general teacher behavior, such as daily review, presentation, guided practice, correctives and feedback, independent practice and weekly reviews.

Such an understanding of the knowledge based teaching and the practice that follows from it is also characterized as a technological or standardized approach to teaching (Eisner, 1994) or as an image of teaching which fits the

“teaching-as-scientific-product” metaphor (Zahoric, 1987). It is assumed that the prestige and apparent success of the medical and engineering models have exerted a great attraction for the social sciences. Thus, in such fields as education, social work, planning and policy making, social scientists have attempted to do research, to apply it and to educate practitioners all according to their perception of the model of medicine and engineering (Schon, 1983).

Within the epistemological paradigm of technical rationality, research is regarded as institutionally distinct and separate from practice. The two are connected by a carefully defined relationship of exchange. That is, researchers are supposed to provide the basic and applied sciences from which to derive techniques for diagnosing and solving the problems of practice. Practitioners, on the other hand, are supposed to furnish researchers with problems for study and with tests of the utility of research results. The researcher's role is, thus, distinct from and usually considered superior to the role of the practitioner (Schon, 1983, p.26).

Hitchcock and Hughes (1995) argued that a feature of applied research is that the link between those who do the research and those who apply it need not normally be a close one. The dissemination of information is often second-hand via books, articles and teaching (p.6). Also, they contend that the obscurity of language and high level of generality implied in much research has often resulted in teachers perceiving this work as being remote and divorced from their needs and

situations (p.8).

Critique of the Positivistic Epistemology of Practice

Technical rationality is a positivist epistemology or a legacy of positivism (Schon, 1983, p.31). Within the positivist paradigm, science is regarded as a hypothesis-deductive system and practical knowledge is construed as knowledge of the relationship of means and ends (p.33).

Schön (1983) argues that practitioners bound by this epistemology find themselves caught in a dilemma. Their definitions of professional knowledge exclude phenomena they have not learned to see as central to their practice. Artistic ways of coping with these phenomena, on the other hand, do not qualify as rigorous professional knowledge (p. 42). This is the dilemma of rigor versus relevance. Many practitioners who subscribe to the technical rationality model of practice have adopted a response to this dilemma that entails “cutting the practice situation to fit professional knowledge” (p. 44). The professional, in other words, tends not to lose confidence in standards, models and techniques and is tempted, therefore, to operate within the parameters of a naïve concept of application.

Edward Schils (1969) says regarding positivistic and technical mentality of professional knowledge:

“The knowledge that was appreciated was secular knowledge which continued the mission of sacred knowledge ... fundamental systematically acquired knowledge was thought in some ways to be a step toward redemption, held out the prospect of the transfiguration of life by improving man's

control over the resources of nature and over the power that weakens his body, it effected the prospect of better understanding of society which it was thought would lead to the improvement of society.”(P.67)

It has long been recognized that when a problem is construed by a professional, it may escape the categories of applied science and present itself as unique or unstable. Schön (1983) asserts that “in order to solve a problem by the application of existing theory or technique, a practitioner must be able to map these categories onto features of the practice situation”. He adds that through the non-technical process of framing the problematic situation, one may organize and clarify both the ends to be achieved and the possible means of achieving them (p. 41). The practitioner thus chooses to refrain from the so-called means-ends or technical rationality to be able to cope with the problem situation more effectively.

Zahoric (1987) has emerged as a critic of technical rationality within the field of education and has convincingly argued that “as supportable as teaching-as-science-product is in the theoretical, it is not supportable in the practical” (p 280). What he means is that research has not produced enough principles or even weak relationships that are appropriate for the range of goal settings and students that exist. To compensate for this fundamental character of practical situations or the lack of fit between the perceived problems and technical knowledge, Chester Barnard (1968) has suggested “non-logical-process” is required. He distinguishes between “thinking process” and

“non-logical process” and maintains that our bias toward thinking blinds us to the non-logical processes, which are omnipresent in effective practice. Along the same line of reasoning, Geoffrey Vickers (1996) has emphasized the use of “artistic judgment” and describes it as the prevalent mode of judgment, not limited to the field of art. Artists, so far from being alone in this, he argues, exhibit most clearly an oddity which is present in all such judgments .

A New Paradigm of Practice: Reflection-in-Action

After Shön, the new non-positivistic or non-technical approach to the problem of professional practice can be referred to as “reflection-in-action”. The entire process of reflection-in-action is central to the art by which practitioners sometimes deal well with situations of uncertainty, instability, uniqueness and value conflicts (Shön, 1983, p. 50). A reflective practitioner, be it a teacher or a professional in any practical field, even when using research-based theories or techniques, is dependent on tacit recognition, judgments and skillful performances. Additionally, when he/she confronts a phenomenon that eludes the ordinary categories of knowledge, presenting itself as unique or unstable, the practitioner may surface and criticize his/her initial understanding of the phenomenon, construct a new description of it, and test the new description by an on-the spot experiment. Sometimes he/she arrives at a new theory of the phenomenon by articulating a feeling about it.

Reflection-in-action, therefore, involves

moving beyond commonsense/ routine knowledge and habitual action or what Dewey refers to as “learning by doing”. Action by such a practitioner is characterized by self-appraisal, flexibility, creativity, social, cultural and political awareness and can be viewed as precisely the kind of skills and attitudes which engagement with research is likely to develop. It might, therefore, be suggested that a reflective practitioner is someone who exhibits the behavior most characteristic of researchers and that he/she effectively participates in the generation and consolidation of the professional knowledge base. The passivity so characteristic of the mode of practice within the traditional paradigm will be transformed to an active mode where mere application of theoretical or technical knowledge is not the sole responsibility of the professional.

Within the field of education, the teacher, when conducting classroom practice according to this new framework, would appear as a scientist or researcher as well; someone who is a continual seeker of truth, the active, self-sufficient and growing professional (Zahoric, p. 282). The teacher scientist, or a reflective educational practitioner, hypothesizes or identifies possible courses of action for the teaching setting, collects evidence through observation and with the aid of instruments about the effects of the action, analyses and reflects on the evidence and makes a judgment about whether to continue, discard or modify the action. It must be emphasized, though, that this process need not be a linear one and can be less deliberate and rational than it seems. Someone skilled in the process, in other words,

could use it during the actual teaching act as well before and after teaching.

Key characteristics of reflective teaching and teachers may, thus, be identified as follows:

Reflective teaching implies an active concern with aims and consequences, as well as means and technical efficiency.

Reflective teaching is applied in a cyclical and spiraling process, in which teachers monitor, evaluate and revise their own practice continuously.

Reflective teaching requires competence in methods of classroom inquiry to support the development of teaching competence.

Reflective teaching requires attitudes of open-mindedness, responsibility and whole-heartedness.

Reflective teaching is based on teacher's judgement that is informed partly by self-reflection and partly by insights from educational disciplines.

Reflective teaching, professional learning and personal fulfillment are enhanced through collaboration and dialogue with colleagues (Pollard & Tan, 1993, p 11).

Background and Overview of the Iranian Experience

Upon the establishment of the Institute for Educational Research (I.E.R.) in 1996 as the governing body of research within the Ministry of Education in the I.R. of Iran, debates continued on how to reach a more comprehensive conception of the scope of educational research emerged as a major theme. The conventional definition of this territory and the conceptual boundaries surrounding it, was deemed inadequate and the

need to move beyond the traditional confines of research appeared as a shared concerns (Merhrmohamadi, 2000). Such convergence of thoughts about a fundamental issue within the field of educational research had a significant bearing on the visions and missions set for I.E.R.

To further elaborate on the conception and the scope of educational research on which agreement was finally reached, the following explanation could be offered. Although, different types of conventional research; i.e.: survey, experimental, historical, etc.; were acknowledged as absolutely necessary to be employed by researchers, dealing with different sorts of research problems, topics, issues or problems related to a complex system such as education, requires a more pluralistic account of knowledge, knowing and research. Research in a complex system, in other words, should not be reduced to the “academic” type and principled inquiry should not be limited to the well known and widely practiced types of research.

Based on this conviction and in the interest of exercising a more pluralistic perception of legitimate research, knowledge and knowing within the field of education, a “Teacher Researcher” program was introduced and adopted as a major complementary focus of attention in I.E.R.’s mission. This initiative was put into action on a national scale in 1997. Accordingly, practicing teachers throughout the country were exposed to the idea through print and other available media and were encouraged to share their worthwhile experiences, i.e.: classroom research, by preparing a report based on a standard format supplied by I.E.R.

Documentation of the existing experiences amounting to what Schön refers to as “teacher reflective action”, or attempts by classroom teachers to experiment with an innovative idea to solve a practical teaching-learning problem, constituted the major goal of the first stage of implementation which was viewed favorably and responded enthusiastically by the teaching force in general. There was 950 reports in the first year which exceeded to almost 4000 within three years period (I.E.R. 2002). As a by-product, this initiative created an atmosphere that encouraged teachers to rethink and redefine their responsibilities within the “reflective practitioner” paradigm. The habitual and accustomed way of carrying out educative responsibilities, in other words, was perceived as problematic and teachers were, thus, challenged to consider the production of practical knowledge as an indispensable part of their professional duties (Fenstermacher, 1986). The energy resulting from the clash of the old and the new understanding of what teaching entails, if treated thoughtfully, could reach the state where the dominant mode of practice would be gradually transformed to a more defensible process of decision making and action by teachers ensuring the improvement of effectiveness indicators of the educational system.

The second phase of the initiative, which started after the first round of the documentation, could be characterized as the training phase. By identifying teachers who have demonstrated a clear inclination to behave within the alternative paradigm, the institute initiated a training program focusing on the theoretical aspect as well as the practical

dimensions of teacher classroom research. The training sessions were conducted using the workshop format and the participants were expected to engage in several practical activities revolving around a subject matter relevant to their prior experience. Since the inception of the training phase of “Teacher Researcher” programme in 1998, more than 450 training sessions with an average duration of 40 hours have been carried out by experts in the field of action research. The total number of teachers being exposed to such training is estimated to be nearly 10,000 (about 1.3% of the total teaching force in grades K-12) and the workshops continue to grow. The rationale behind focusing the training on the group who have already demonstrated an “experimental” approach, i.e. those who actively participated in the documentation phase, was to make training more productive by offering the opportunity to a motivated audience.

Existing Problems and Future Directions

The relative success of the “Teacher Research” programme notwithstanding, the outcome did not match the expectations both quantitatively and qualitatively. The number of participating teachers, for example, reached a stable state possibly due to the loss of programme’s momentum. Also, the quality of reports presumably representing the reflective action of classroom teachers, did not seem to satisfy criteria such as thoughtfulness, ingenuity and creativity. I.E.R.’s executive council, therefore, decided to put what had transpired under scrutiny. For that purpose, a council consisting of experts both from the academics and the program

authorities was formed. The agenda set for the council by I.E.R. was to conduct an evaluation study as well as to draw up an action plan for the future, based on the insights gained through the study. The evaluation was carried out in 2002 which served as the basis for further deliberations at the council meetings to reach the outline for the future directions guiding the implementation of the program.

This section of the paper contains a short overview of the two major findings of the evaluation study, followed by the nine-point action plan, which is to be enacted by I.E.R. and the authorities in the ministry of education.

The first and the foremost inhibiting factor in creating a favorable atmosphere for Teacher Research Programme is the centralised system of education where teachers are almost entirely excluded from the decision making process. Teacher as researcher, clearly, is an idea in peace and harmony with a working condition where teacher professionalism is respected and teachers are trusted to make sensible decisions with respect to problems and concerns emerging in their teaching context.

Legitimization can be gained through decentralization and careful refrainment from a prescriptive approach to the educative process (Eisner, 1994). Teacher empowerment by loosening the grip, therefore, should be regarded as an absolute priority, otherwise teacher classroom research will be interpreted as an empty slogan useful only for portraying a progressive image of policy makers.

Second, the excessive teaching load of teachers

and bureaucratic character of the education system have served as discouraging factors for teachers to engage in non-conventional ways of classroom conduct. The teaching load and the rules and regulations governing the profession, in other words, fly in the face of creativity and innovation and reinforce the traditional or conventional image of teaching. Teachers, under such conditions, will prefer to emulate the standard way of attending to their responsibilities and will consciously avoid experimenting with new ideas. When it is not okay to err, it could be argued, and one has to pay a heavy price for unconformity to the rules, creativity and ingenuity are the last things teachers will dare to exercise.

The two major problems explained above are not the only ones identified through the evaluation study. The items included in the action plan will also be indicative of the issues and problems. A description of the nine-point action plan, therefore, will mark the conclusion of this paper.

Infusion of a teacher research component to the pre-service teacher education program. The argument is that unless the prospective teachers are initiated into the profession in ways commensurate with the notion of teacher as researcher, it will not penetrate into the education system and the expectations will be frustrated. In other words, teacher training must properly mirror the ideal of teacher as researcher and the pre-service curriculum must aim at inducing the experimentation attitudes and skills in future teachers in order to address the issues confronted in a more insightful manner.

Focused in-service teacher education guided by

the insights obtained from the review of teachers' classroom research report accumulated through the years of implementation. Analysis of these reports by action research experts points to the theoretical as well as practical needs of practicing teachers that training programs should concentrate on.

Making the in-service program mandatory for teachers who are willing to enter the next cycle of the program (i.e. annual teacher researchers contest) and wish to disseminate their classroom research achievements throughout the country. Although this decision could be criticized on the grounds that it limits participation and might, therefore, threaten the very survival of the programme, nevertheless, advocates of this provision argue that increased programme productivity assures better quality classroom research conducted by teachers. Good quality classroom research could also serve as exemplars or practical guides for other teachers and, thus, creating a synergy in the system.

Cooperative or group-based action research projects. The major idea behind this item of the action plan is that action research is not necessarily a solo activity, and that a group of teachers in a school or a geographical territory can draw up a proposal together and try to implement it in their respective classrooms, in a collaborative or collective spirit. Teachers should be encouraged to cooperate as partners in a classroom research activity and count on each other's insight and support in this adventurous journey (Eisner, 2002). Collaborative teacher research could, therefore, turn out to be a more satisfying experience and yield more defensible outcomes (Lewis

&Tsuchida,1997). University based researchers can also be involved as members of the action research groups and may play leading roles within such a scheme.

Encourage teachers to initiate teacher organizations in different subject matters. Such groups can function as forums to discuss and debate issues concerning teaching and learning in a particular subject matter. The outcome of such debates can, among other things, serve as a proper source of ideas and inspire teachers to engage in teacher classroom research.

In other words, systematic and organized peer discussions generate problems that can become the subject of classroom research by teachers. Many teachers may suffer from the inability to formulate meaningful problems and thus miss the opportunity to contribute to the professional knowledge base through action research. This, too, is a potentially useful structure to help promote the idea of teacher as researcher and to loosen the centralized and bureaucratic grip on the field.

Production and dissemination of appropriate reading materials to capture the attention of teachers who either have not been well informed about the program or those who have not demonstrated much enthusiasm. Lack of enthusiasm could be attributed to misconceptions about the intent of the program or skepticism about being able to successfully meet the novel demands called for by the program. Additionally, the materials are to be designed in such a way that the professional needs of teachers already engaged in the programme will be properly addressed.

Part of the reading materials, monographs,

articles, books, etc., would, therefore, be intended to strengthen the knowledge base and skills repertoire of this group of teachers.

Tapping into the potentials of new technologies, an Internet site is to be provided to facilitate access to such materials by teachers who have access to Internet.

Delegation of responsibility to regional educational authorities within the guidelines enacted by the central coordinating office (I.E.R.) to carry out different components of the Teacher Researcher Programme (provision for decentralization). Special committees have thus been established at regional levels to assure a host of responsibilities formerly carried out by the central office.

A major mechanism that has the potential to further encourage the adoption of a teacher researcher outlook by teachers is to offer teachers with outstanding achievement study leave or sabbaticals. Study leave can function as a meaningful reward mechanism, which can effectively promote and energize the programme.

This year long study leave will take place either in the relevant research institutes within the country or, in rare cases, in research institutes abroad.

Creation of teacher researcher site. The site will include information about the programme and the research reports presented for the annual contest. Links to other data banks and sites, either national or international, should be part of the design so that opportunities to find out about other institutes or people interested in the idea will be taken advantage of.

Conclusion

It is hoped that the teacher researcher programme will remain a fertile and provocative ground for innovation and the consequent renovation of the education system in Iran. Other education systems who are still skeptical about this reform strategy are encouraged to enter this challenging field and share their experiences through scholarly medium. Through a more widespread commitment to this paradigm of practice, a more effective education system will emerge, the least of what policy makers owe to the next generation.

Bibliography

- Berliner, D.C. "The Half-Filled Glass: A Review of Research on Teaching". In *"Using What We Know About Teaching"*. Hosford, P. L. (Ed.). ASCD: Alexandria, VA. 1984, pp.51-77
- Barnard, C. *The Functions of the Executive*. Harvard University Press, Cambridge, Mass. 1968.
- Cohen, L. and Marion, L. *Research Methods in Education*. 2nd ed., Beckenham: Croom Helm, 1986.
- Eisner, E. "The Kind of Schools We Need". *Educational Leadership*. V.3, N.4. 1983. PP.48-56
- Eisner, E. *The Educational Imagination: On the Design and Evaluation of School Programs*, 3rd ed. N.Y. : Macmillan College Publishing Company. 1994, PP.4-19.
- Eisner, E. "The kind of Schools We Need". *Phi Delta Kappan*, Vol. 83, Issue 8, 2002. PP.576-584.
- Fentemacher, G.D. Philosophy of Research on Teaching: Three Aspects. *Handbook of Research on Teaching* (3rd Edition). Witrock, M.C. (Ed.), N.Y.: Macmillan, 1986, pp.37-49.
- Hitchcock, G. and Hughes, D. *Research and The Teacher: A Qualitative Introduction to School-Based Research*, 2nd ed., Routledge, New York, 1995.
- Institute for Educational Research (IER), *Progress Report: Teacher Researcher Program*. Ministry of Education, Tehran, Iran, 2002.
- Joyce, B.; Calhoun, E. and Hopkins, D. *Models for Learning, Tools for Teaching*. Open University Press, London. 1992.
- Lewis, C. and Tsuchida, I. "Planned Educational Change in Japan: The Shift to Student-Centered Elementary Science". *Journal of Educational Policy*, Vol. 12, 1997. PP. 313-331.
- Lytle, S.L. and Cochran-Smith, E.M. "Teacher Research as a Way of Knowing". *Harvard Educational Review*, V.62, N.4. 1992.
- Mehrmohammadi, M. Toward A New Understanding of The Realm of Educational Research. In *Thoughts About Research in the Field of Education*. I.E.R. Mehrmohammadi, M. (ed.), 2000. PP. 7-20.
- Moore, W.E. *Professions*. Russell Sage Foundation, New York, 1970.

15. Pollard, A. and Tann, S. *Reflective Teaching in the Primary School: A Handbook for the Classroom*, 2nd ed. London, Cassell, 1993.
16. Rosenshine, B. and Stevens, R. Teaching Functions. In *Handbook of Research on Teaching*, 3rd ed., Wittrock, M.C. (Ed.). Macmillan, N.Y, 1986. P 377.
17. Schon, D. *The Reflective Practitioner*. Basic Books. New York, 1983.
18. Schon, D. *Educating the Reflective Practitioner*. Jossey-Bass Inc. New York, 1987.
19. Schils, E. (Ed.) *Criteria for Scientific Development: Public Policy and National Goals*. MIT Press, 1969.
20. Stigler, J.W. and Hiebert, J. *The Teaching Gap: Ideas from the World's Teachers for Improving Education in the Classroom*. Free Press, New York, 1999.
21. Vickers, G. *The Art of Judgment*. Chapman Hall, London, 1996.
22. Zahoric, J. "Teaching: Rules, Research, Beauty and Creativity". *Journal of Curriculum and Supervision*, V.2, N.5, 1987. PP. 275-284.

تأملی بر یک تجربه ملی در ایران

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چکیده

پژوهندگی معلم از جمله مباحث و موضوعاتی است که در چند دهه اخیر مورد توجه و تأکید بسیاری از صاحب‌نظران و اندیشمندان حوزه تعلیم و تربیت قرار گرفته است. حمایت از این اندیشه خصوصاً از جانب کسانی صورت می‌گیرد که نگاه آنها به دانش آموزش و پرورش نگاه علمی به معنای اثباتی (تحصلی) آن نیست؛ به دیگر سخن موقعیتهای کلاس درس را تا حدود زیادی موقعیتهای انسانی بی‌بدیل و بی‌نظیری میدانند که رویارویی مؤثر با آنها و دستیابی به اهداف و مقاصد آموزشی مستلزم ایفای نقش فعال معلم به‌عنوان یک پژوهنده آموزشی و مشارکت او در عرصه خلق دانش موقعیت‌مدار تعلیم و تربیتی است. در این راستا متفکران نواندیش تعلیم و تربیت علاوه بر تدارک مبانی نظری (به‌ویژه معرفت‌شناختی) به ارائه الگوها و راهکارهای مناسب برای حل مسائل کلاس درس در این چارچوب پرداخته‌اند.

در این مقاله ضمن بررسی مبانی نظری این دیدگاه به مرور نقد و ارزیابی تجربه آموزش و پرورش جمهوری اسلامی ایران - که تحت عنوان برنامه معلم پژوهنده به مورد اجرا گذاشته شده است - نیز پرداخته می‌شود.

کلیدواژگان: معلم پژوهنده، کارگزار فکور

1. دانشیار دانشگاه تربیت مدرس